

<p align="center">8 RHODAMINE 6G</p>	<p align="center">Page 1 of 2</p>
<p align="center">Division of Forensic Science</p> <p align="center">LATENT FINGERPRINTS PROCEDURES MANUAL</p>	<p align="center">Amendment Designator:</p>
	<p align="center">Effective Date: 29-January-2004</p>
<div data-bbox="727 289 971 321" data-label="Section-Header"> <h2 align="center">8 RHODAMINE 6G</h2> </div> <div data-bbox="151 352 420 384" data-label="Section-Header"> <h3>8.1 INTRODUCTION</h3> </div> <div data-bbox="207 415 1555 657" data-label="Text"> <p>Rhodamine 6G is a supplemental processing procedure designed to enhance faint or indistinct impressions developed by another technique. Rhodamine 6G is used after cyanoacrylate ester fuming. Rhodamine 6G has an affinity for adhesion to polymerized latent impressions even at levels below visual observation. Excitation of Rhodamine 6G with the 488 nm, 510 nm or 514.5 nm lines of the ALS produces extremely bright fluorescence at about 550 nm.</p> <p>Rhodamine 6G is classified as “an animal positive experimental carcinogen”. (Masters, 3) This chemical is toxic and should be handled using appropriate laboratory safety equipment. Since this chemical is soluble in water absorption can occur through ingestion or inhalation. Inhalation levels have not been established but are to be avoided in any amounts.</p> </div> <div data-bbox="151 688 420 720" data-label="Section-Header"> <h3>8.2 PREPARATIONS</h3> </div> <div data-bbox="207 751 1555 993" data-label="Text"> <p>The examiner can choose from two preparations of Rhodamine 6G solutions. The preparation chosen is primarily dependent on the reaction of the substrate to the solvent used. A 0.01% to 0.001% Rhodamine 6G in methanol or isopropanol, weight to volume, is productive for most surfaces with methanol being the preferred solvent. Working solutions of Rhodamine 6G should be prepared in small amounts. Weaker solutions are recommended from the viewpoint of health risk and degree of background fluorescence. Aerosol spraying or fuming with Rhodamine 6G has been attempted with no consistent improvement in results, and due to increased health risk, are not recommended. Aqueous Rhodamine 6G solutions should be used when methanol or other organic solvents will be destructive to the surface being treated. If distilled water is not available deionized water may be used.</p> </div> <div data-bbox="207 1024 493 1056" data-label="Section-Header"> <h4>8.2.1 Methanol Formula</h4> </div> <div data-bbox="297 1087 990 1119" data-label="List-Group"> <ol style="list-style-type: none"> 1. Dissolve 0.1 grams of Rhodamine 6G in 1.0 liter of methanol. </div> <div data-bbox="207 1150 493 1182" data-label="Section-Header"> <h4>8.2.2 Aqueous Formula</h4> </div> <div data-bbox="297 1213 1042 1297" data-label="List-Group"> <ol style="list-style-type: none"> 1. Dissolve 0.1 grams of Rhodamine 6G in 1.0 liter of distilled water. 2. Add 3-6 drops of Synperonic N and gently stir. </div> <div data-bbox="297 1329 1555 1392" data-label="Text"> <p>-The Synperonic N is a surfactant which allows for a sheeting or more even covering of the item with the working solution.</p> </div> <div data-bbox="151 1423 477 1455" data-label="Section-Header"> <h3>8.3 INSTRUMENTATION</h3> </div> <div data-bbox="207 1486 453 1518" data-label="Section-Header"> <h4>Alternate Light Source</h4> </div> <div data-bbox="207 1549 1555 1728" data-label="Text"> <p>Alternate light sources can be used to illuminate the evidence and produce the desired fluorescence. The most common wavelengths of light used are 488nm and 514.5 nm.</p> <p>Proper safety precautions including avoiding skin exposure and proper eye protection with appropriate optical densities should be utilized when operating ultraviolet light sources, or alternate light sources. Consult the appropriate users manuals for the safe use and appropriate eye protection for the specific piece of equipment being utilized.</p> </div>	

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<p>8.4 MINIMUM STANDARDS & CONTROLS</p> <p>Dye stains, such as Rhodamine 6G, work by discoloring latent impressions developed with cyanoacrylate ester. Due to their inherent ability to stain and discolor the ridge detail, there is no need for test impressions to be done prior to evidence application.</p> <p>8.5 PROCEDURE OR ANALYSIS</p> <p>All applications should be done in a fume hood.</p> <ol style="list-style-type: none"> 1. Apply the solution to the item to be processed by immersion or squirt bottle. 2. Rinse the item with methanol and allow to dry. 3. Examine the item with the alternate light source at the appropriate wavelength, 488 nm, 510 nm or 514.5 nm, using the appropriate filters. 4. Have any impressions photographed. <p>8.6 INTERPRETATION OF RESULTS</p> <p>If the impressions are faint, repeated applications of the Rhodamine 6G solution may be attempted. If repeated applications of the dye solution fail to improve the fluorescence, the Rhodamine 6G concentration may be increased. Photographic preservation incorporating orange filters as used in the evidence examination or a Wratten #21 filter, and panchromatic films prove quite successful with even faint fluorescence.</p> <p>8.7 REFERENCES</p> <ol style="list-style-type: none"> 1. Lennard, Christopher J.; Pierre A. Margot. "Sequencing of Reagents for the Improved Visualization of Latent Fingerprints"; <i>Journal of Forensic Identification</i>, September/October 1988, 38, 5, 197-210. 2. Kent, Terry, ed. <i>Fingerprint Development Techniques</i>; Heanor Gate Publisher: Derbyshire, England, 1993. 3. Masters, Nancy E. "Rhodamine 6G: Taming the Beast"; <i>Journal of Forensic Identification</i>, September/October 1990, 40, 5, 265-270. 4. Menzel, E. Roland. <i>Fingerprint Detection with Lasers</i>; Marcel Dekker: New York, 1980. 5. Menzel, E. Roland. "A Guide to Laser Latent Fingerprint Development Procedures"; <i>Identification News</i>, September 1983. 6. Menzel, E. Roland. "Detection Of Latent Fingerprints By Laser-excited Luminescence"; <i>Analytical Chemistry</i>, 1989, 61, 8, 557-561. <p align="right">◆End</p>	